

I am interested in the PLUTO project for the year 2012 or I would like support in other areas in science learning and engagement. (Please FAX this or send to Simon or Paul.).

Name: .....  
School: .....  
Email: .....  
Contact Ph/Mb: .....

The areas I am interested in are (tick):

- ☐ PLUTO
- ☐ NZC/NCEA
- ☐ Ka Hikitia

More specifically:

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.....  
.....  
.....

A good time to contact me is:

.....

Any other questions?

## Project Facilitators:

### Simon Taylor

Science Adviser (Secondary)  
University of Waikato  
School Support Services  
142 Durham Street  
Private Bag 12-027  
Tauranga 3143  
E: [simont@waikato.ac.nz](mailto:simont@waikato.ac.nz)  
Wiki: <http://bop-waikato-gisborne-science-teachers.wikispaces.com/PLUTO+Please+Let+Us+Take+Off+project>

MB: 027 495 5317  
P: (07) 577 5314  
F: (07) 577 5315

### Dr Paul Lowe

E: [lofarm@xtra.co.nz](mailto:lofarm@xtra.co.nz)

## Vision

Quality learning through partnerships  
Nau te rourou, naku te rourou ka ora te iwi

## Mission

Growing and enhancing learning, through formal and informal professional learning opportunities



THE UNIVERSITY OF  
**WAIKATO**  
*Te Whare Wānanga o Waikato*

# SCIENCE

## THE PLUTO PROJECT

Please Let Us Take Off!

2011-2012



*Professional Learning Programme for 2012  
Secondary Science Teachers and Educators*



*Raising student engagement and achievement  
in science*



*Improving students' attitudes and perceptions to  
science and raising Maori students' engagement  
with science experiences at secondary school*



Equipped with his five senses, man explores the universe around him and calls the adventure 'Science'

(Edwin Powell Hubble, The Nature of Science, 1954)

# THE PLUTO PROJECT

## Please Let Us Take Off!

A major focus for professional learning in schools (facilitated by the Science Adviser) is the use of student voice to aid the shifts in teaching practice. Student voice has activated and stimulated discussion in science faculties to act as a mechanism to make changes in the learning environment - hence the name

**"PLUTO" Please Let Us Take Off!**

2007 NZ curriculum focuses on learners at the centre of the learning process. Schools and faculty departments have the flexibility to actively involve students in what they learn, how it is taught, and how the learning is assessed. This model of learning encompasses generic skills and competencies like thinking, working together collaboratively in teams and being future orientated.

### **Engagement and Achievement: in Science**

Another significant element to the proposed project is to raise Maori students' engagement with their first and on going science experiences at secondary school and their overall achievement

*continued ↗*

at year 9 and 10. In the Waikato, BOP region, there is a proportion of Maori students in most junior science classes. Teachers observe that some Maori students remain disengaged in science activities and their overall attitude to Science learning is concerning.

The focus would be at the year 9 cohort initially and would shift to year 10 later. The principles of the Te Kotahitanga effective teaching profile would be used as an opportunity to discuss the elements of Manaakitanga, Mana Motuhake, Whakapiringatanga, Wananga and Ako. These themes would support the project in their opportunities to raise Maori engagement and achievement in an effective learning environment.

It is this model of student learning and teaching that this proposed project is interested in exploring, with particular reference to science education of years 9 and 10 at secondary schools. The emphasis of key competencies in the curriculum point out that students in the 21<sup>st</sup> Century are required to make informed decisions and have the ability to apply their knowledge and relate it to familiar and unfamiliar situations.

*When we try to pick out anything by itself,  
we find it is tied to everything  
else in the universe.*

*(John Muir 1838-1914 US Naturalist, Explorer)*

### **The Initiative would:**

- In 2011 would target up to 15 secondary school teachers and their corresponding schools in the regions of the Waikato and Bay of Plenty. Schools already in the programme would have right of entry. Selection of a Year 9/year10 science class. The class would be of mixed ability students, having basic numeracy and literacy skills at level 4 or higher.
- Implement a quality professional learning programme with the associated teachers.
- Facilitate a two day learning retreat on the **14th/15th February 2011 in Hamilton** to provide an opportunity for the teachers to continue to create a shared understanding of their vision for the programme and examine the PLUTO classroom strategies.
- Explore and develop strategies such as COLA Cooperative Learning and Assessment, Inquiry learning and PROBLIT, in each class. Students working in teams, learning and using appropriate contexts, and facilitated with the teachers and corresponding science faculties.
- Require the school laboratory to have digital access to the internet. A minimum of four to five computers in the room would be an important aspect of knowledge gathering. Access to a science laboratory for most of the science contact time would be a requirement. There would be an emphasis on practical activities and a creative long term investigation, and hence the need for the usual physical laboratory conditions.
- Support and form a professional cross-curricular learning community and share a common vision.

